

MAULANA ABUL KALAM AZAD UNIVERSITY OF TECHNOLOGY, WB
Syllabus of B. Sc. In Medical Lab Technology
(Effective for 2021-2022 Admission Session)
Choice Based Credit System
140 Credit (3-Year UG) MAKAUT

2nd Semester

Subject Type	Course Name	Course Code	Credit Distribution			Credit Points	Mode of Delivery			Proposed Moocs
			Theory	Practical	Tutorial		Offline	Online	Blended	
CC 3	Human Anatomy II	BML(T) 201	4	0	0	6	✓			As per MAKAUT Notification
		BML 291	0	2	0					
CC 4	Human Physiology II	BML(T) 202	4	0	0	6	✓			
		BML 292	0	2	0					
GE 2	Students will have to select from the GE Basket				6			✓		
AECC 2	Environmental Science	BML 265	2	0	0	2	✓			
Semester Credits						20				

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CC3: Human Anatomy II

Credits- 4T+2P

Course Objective: The course is designed to provide a working anatomical knowledge and skills on cardiovascular system, nervous system, special sense, genitourinary system.

Sl	Course Outcome
1	Able to apply the concepts and knowledge of anatomy of the cardiovascular and lymphatic system.
2	Understand the anatomical structure of brain, spinal cord, cranial nerves, spinal nerve.
3	Describe the position and structure of Pituitary, Thyroid, Parathyroid, Pancreas, Adrenal.
4	Able to demonstrate the anatomical structure of eye, ear and nose.
5	Describe the anatomical structure of male and female reproductive system.
6	Demonstrate the position and structure of cardiovascular system, nervous system, endocrine glands, ear, eye, nose, male and female reproductive organs.

THEORY- BML(T) 201

CO	Blooms Level (if applicable)	Module	%age of questions
CO1	1,2	M1	20
CO2	1,2	M2	24
CO3	1,2	M3	20
CO4	1,2	M4	16
CO5	1,2	M5	20
CO6			
			100

PRACTICAL- BML 291

CO	Blooms Level (if applicable)	Module	%age of questions
CO1			
CO2			
CO3			
CO4			
CO5			
CO6	2,3	M6	100

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Detailed Syllabus

Module 1-Cardiovascular system: 8h

Basic anatomy of heart and important blood vessels Brief introduction about Lymphatic System.

Module 2-The Nervous System: 10h

Basic anatomy of brain and spinal cord, meninges and cerebrospinal fluid, Cranial Nerves.

Module 3-Endocrine System: 8h

Brief anatomy of Pituitary, Thyroid, Parathyroid, Pancreas, Adrenal.

Module 4- Special Senses: 6h

Basic anatomy of eye, ear and nose.

Module 5-Genitourinary system: 8h

Basic anatomy of kidney and associated organs, male reproductive organs, female reproductive organs.

Module 6- Practical: 20h

1. Cardiovascular system - Demonstration from model of heart, cardiovascular system, Lymphatic System.
2. Nervous System - Demonstration from model of brain and spinal cord.
3. Endocrine System - Demonstration of Pituitary, Thyroid, Parathyroid, Pancreas, Adrenal from chart.
4. Special Senses- Demonstration from model of eye, ear and nose.
5. Genitourinary system - Demonstration of male and female reproductive organs from model and chart.

Text Books:

1. Chaurasia B D, (2016), Human Anatomy, 7th edition, CBS publishers.
2. Samaresh Mitra, Anatomy, 7th edition, Academic Publishers.

Reference Books:

1. Ross & Wilson, (2014), Anatomy & Physiology in health & illness, 11th edition, Elsevier Publications.
2. Gerard J. Tortora and Bryan H. Derrickson, (Principles of Anatomy and Physiology, 14th edition, Wiley Publications.

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CC4: Human Physiology II

Credits- 4T+2P

Course Objective: The course is designed to provide basic knowledge of renal, muscular, nervous, endocrine and reproductive system. The students will be able to develop an understanding of the physiological concepts associated with Medical Lab Technology.

Sl	Course Outcome
1	Understand the function of renal system.
2	Illustrate the concept of muscular system.
3	Explain the physiological function of nervous system.
4	Develop physiological knowledge of endocrine system.
5	Apply the knowledge, concept of reproductive physiology.
6	Apply the skill in diagnostic laboratory by using the modern tools and techniques and correlate between interdisciplinary branches.

THEORY- BML(T) 202

CO	Blooms Level (if applicable)	Module	%age of questions
CO1	1,2	M1	24
CO2	1,2	M2	16
CO3	1,2	M3	24
CO4	1,2	M4	16
CO5	1,2	M5	20
CO6			
			100

PRACTICAL- BML 292

CO	Blooms Level (if applicable)	Module	%age of questions
CO1			
CO2			
CO3			
CO4			
CO5			
CO6	2,3	M6	100

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Detailed Syllabus-

Module I- Organs of Excretory System: 10h

Kidneys, Nephron, Mechanism of Excretion, Urine formation (Glomerular filtration and Tubular reabsorption), Electrolytes: their balances and imbalances Introduction of acidosis and alkalosis

Module 2- Muscular System: 6h

Muscle nerve physiology, types of muscles, their gross structural and functional difference with reference to properties.

Module 3- Nervous system: 10 h

General organization of CNS, function of important structure and spinal cord, neuron, nerve impulse, type of nerves according to function, autonomic nervous system- organization & function.

Module 4- Endocrine System: 6h

Brief introduction about endocrine glands and their secretion, common endocrinological disorder such as diabetes mellitus, hyper & hypothyroidism, dwarfism, gigantism, tetany.

Module 5- Reproductive System: 8h

Male & female reproductive organs, sex hormones, secondary sexual characteristics, puberty, spermatogenesis, oogenesis, menstrual cycle, pregnancy, menopause, contraceptive measures.

Module 6: Practical 20h

1. To perform total platelet count.
2. To perform bleeding time.
3. To perform clotting time.
4. To study about intrauterine contraceptive devices.
5. To demonstrate microscopic structure of bones with permanent slides.
6. To demonstrate microscopic structure of muscles with permanent slides.
7. To study about CSF examination.

Text Books:

1. C.C. Chatterjee, Human Physiology (vol 1 &2) 12 Ed, , Medical Allied Agency
2. G.K. Pal, Comprehensive Textbook of Medical Physiology, Jaypee Brothers Medical Publishers
3. Sembulingam K, (2012), Essentials of Medical Physiology, 6th edition, Jaypee Publications

Reference Books:

1. Guyton and Hall,(2011) Textbook of Medical Physiology,12th Edition, Saunder/Elsevier
2. Ross & Wilson,(2014),Anatomy & Physiology in health & illness,11th edition, Elsevier Publications
3. Sujit Chaudhury,(2011),Concise Medical Physiology,6th edition, NCBA
4. Gerard J. Tortora and Bryan H.Derrickson,(Principles of Anatomy and Physiology,14th edition,Wiley publications

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AECC 2- Environmental Science

Semester Credits- 2T

Course Objective: The course is designed to provide a working knowledge of environment, ecology and physical sciences for problem solving. The learner will be able to remember, understand and apply the taught concepts and methods involving social and environmental processes for betterment of environmental health and safety.

COURSE OUTCOMES (CO):

Sl	Course Outcome	Mapped modules
1	Be able to remember the basic concepts related to environment & ecology	M1,M2
2	Be able to remember & understand the scientific problem related to air, water, noise & land pollution	M1, M2
3	Be able to understand environmental laws , regulations , guidelines and n applying those for maintaining quality of environmental health and safety .	M1, M2,M3

Module Number	Content	Total Hours	%age of questions	Covered CO	Blooms Level
Module 1	Environmental Concepts	7	30%	1,2	L1
Module 2	Resources & Pollution	6	30%	2,3	L1, L2
Module 3	Environment Management	7	40%	1,2,3	L2,L3

SYLLABUS

Module 1: Environmental Concepts – Definition & basic concept of Environment & Ecology, man, society & environment, their interrelationship, Elements of ecology elements of ecology - species, population, community, definition of ecosystem- Structure & function of ecosystem (Bio geo chemical cycles, food chain, energy flow, ecological pyramid), Biodiversity & its threats and remedies. [7]

Module 2: Resources & Pollution – renewable & non-renewable resources, Bio-degradable and non-biodegradable pollutants, Sources & Effects of Pollution, Methods of Control (Air, Water. Land, & Noise)

Module 3: Environment Management - Concept & scope of environment Management, National environmental policy & Environmental Legislations in India, Environment Management System – ISO 14000, Environmental Audit, Eco mark, green Industry, Cases on Environment Impact Assessment.

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REFERENCES

Suggested Readings

1. N.K. Oberoi: Environmental Management, Excel Books
2. G.N. Pandey: Environmental Management, Vikas
3. K.M. Agrawal & P.K. Sikdar: Text Book of Environment, MacMillan
4. L.W. Canter: Environmental Impact Assessment, McGraw Hill
5. M.P. Poonia & S.C. Sharma, Environmental Studies, Khanna Publishing House (AICTE Recommended Textbook – 2018)
6. Masters, G. M., "Introduction to Environmental Engineering and Science", Prentice-Hall of India Pvt. Ltd.,1991.
7. De, A. K., "Environmental Chemistry", New Age International
8. Fundamentals of Ecology -Odum, E.P.
9. Instant notes on Ecology -Mackenzie, A., Ball, A.S. and Virdee, S.R. (1999) Viva Books
10. G. Dasmahapatra – Basic Environmental Engineering & Elementary Biology, Vikas Publication
11. Environmental Science, Cunningham, TMH
12. Environmental Pollution Control Engineering, C.S.Rao, New Age International
13. Environmental Science, Wright & Nebel, PHI
14. Environmental Pollution Analysis, S.M.Khopkar, New Age International